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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/593,481

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Agustin Sin Xicola

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EXAMINER

RUMP, RICHARD M

ART UNIT

PAPER NUMBER

1793

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/593,481	<b>Applicant(s)</b> SIN XICOLA ET AL.	
	<b>Examiner</b> Richard M. Rump	<b>Art Unit</b> 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 32-62 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 32-62 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1: 09/20/2006 2: 05/22/2008</u> .                             | 6) <input type="checkbox"/> Other: ____.                          |

## **DETAILED ACTION**

### ***Status of Application***

Claims 32-62 are pending and presented for examination.

### ***Information Disclosure Statement***

The information disclosure statements (IDS) are acknowledged and the references listed thereon have been considered by the examiner on the attached copies of the PTO-1449 forms. Note that the provided French patent was only examined on the basis of its abstract.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 32-61 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear how the recited method steps match what the preamble is reciting; How is the combination of the recited method steps arriving at an electrolyte membrane and/or a cathode and/or an anode? With this in mind, the following rejections of claims 32-61 are provided for completeness and because they appear to match the interpretation that the process is for creating the anode.

### ***Claim Rejections - 35 USC § 102***

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 32-34, 37, 38, 41, 42, 57, 58 and 62 are rejected under 35**

**U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over EP 0685435 (Rohm; provided by Applicant).**

Regarding claim 62, Rohm discloses a process for manufacturing a nanosized powder wherein an aqueous solution of metal cations are thermally treated along with an ethylenically unsaturated monomer with an ester moiety and a cross-linking monomer with two ethylenically unsaturated ester moieties to provide a gel and to thusly obtain at least one metal cation in an oxide form and then calcining said gel too obtain one nanoscale metal oxide powder (page 3, lines 5-39). Sintering is part and parcel of calcination, see also pg. 5. While there is no direct statement that the powder formed is crystalline, it would be at a minimal obvious to a skilled artisan, if not indeed inherent, that the powder will have some level of crystallinity. Every recited step of claim 32 is taught. As to claims 33, 34, 37, 38, etc., description of elements not required to be present does not add anything to the claims. Claims 57 and 58 are deemed possessed since the process is the same- also see ex. 1.

**Claims 32-45 & 48-62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rohm in view of Tarancon, "Syntehsis of Nanocrystalline Materials for SOFC Applications by Acrylamide Polymerisation" (Provided by Applicant).**

Regarding claim 32, Rohm discloses the above except the overall inclusion into an electrochemical device, nor is sintering performed. However, in a process for creating a ceramic for the purposes of anodic material for an electrochemical device, Tarancon discloses the usage of sintering and the parts in an electrochemical device (page 1, right hand column, paragraphs 2-3; page 2, left hand column, paragraph 2). Therefore it would have been obvious to perform the oxide creation of Rohm in view of the sintering and oxide inclusion into an electrochemical device of Tarancon. The teaching or suggested motivation in doing so is that it is known in the ceramic art that sintering gives control over densification and grain size and particularly in the case of Tarancon to control the final degree of densification (page 5, "4. Conclusion"), furthermore it appears the inclusion into an electrochemical device would be an obvious design choice to a skilled artisan (In re Larson, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965)).

Regarding claim 33, a solid oxide fuel cell is utilized in Tarancon (page 1, left hand column, first paragraph).

Regarding claims 34-36 & 61, Tarancon discloses that the recited metals may be used as an anode/cathode (page 1, left-hand, first paragraph; page 2, left hand column,

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second paragraph). Furthermore, one having an ordinary level of skill in the art knows it is quite well that the recited metals are commonly used for this purpose.

Regarding claim 37, it is well known that aqueous solutions already contain water, as that is what makes them aqueous.

Regarding claims 38-40, glycol, metal cations and nitrates are all disclosed by Tarancon (page 1, left hand column, second paragraph).

Regarding claims 41-42, Tarancon discloses the usage of high cation concentrations (page 2, left-hand column, second paragraph).

Regarding claims 43-45, Rohm discloses the usage of acryl esters (page 3, lines 5-28).

Regarding claims 46-47, since the genus of crosslinking monomer is taught, it would be obvious to a skilled artisan select a particular crosslinking agent from the finite list of possible crosslinking agents (KSR International Co. v. Teleflex Inc. (KSR), 550 U.S.82 USPQ2d 1385 (2007)). In event of *arguendo*, the Examiner adds the below rejection.

Regarding claims 48-49, the usage of potassium persulfate as an initiator is disclosed by Rohm (page 6, lines 2-15).

Regarding claim 50, Tarancon discloses a thermal treatment at 80 C (page 2, left-hand column, second paragraph).

Regarding claims 51-56, Tarancon discloses drying of the gel, homogenization of a xerogel, and increasing the heating rate to 300 C/hour up to 800 C to do calcining, and

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milling for the purposes of disagglomeration (page 2, left hand-column, second paragraph to the right-hand column, first paragraph; abstract).

Regarding claims 57-58, a primary particle size of less than 10 nanometers is taught by Rohm (page 6, lines 34-38) and sintering.

Regarding claims 59-61, sintering is commonly done in an oxygen or hydrogen atmosphere to reduce. As to claim 62, in so far as the selection of the materials represents optimization rather than anticipation, then this is an obvious expedient.

**Claims 46-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rohm in view of Trancon as applied to claim 32 above, and further in view of US PG Pub No. 20040038133 to Yamaguchi.**

Regarding claims 46-47, those specific crosslinking agents are not disclosed by Rohm with Trancon, however as provided *supra* it would be obvious to a skilled artisan to pick one particular agent. In event of *arguendo*, the Examiner adds that Yamaguchi discloses in a fuel cell that in order to control polymerization a skilled artisan would be motivated to use polyethyleneglycol diacrylate ([0061]). As such a skilled artisan would find it obvious to perform the usage of the PEG diacrylate in Rohm with Trancon for the *supra* reason.

### ***Conclusion***

Claims 32-62 are rejected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard M. Rump whose telephone number is (571)270-

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5848. The examiner can normally be reached on Monday through Friday 7:00 AM-4:30 PM (-5 GMT).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571)272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/R. M. R./  
Examiner, Art Unit 1793

/Stuart Hendrickson/  
Primary Examiner, Art Unit 1793